

# Curriculum Vitae

Robert Robertson Gillies

## ADDRESS

### **Dr. Robert R. Gillies**

Director / State Climatologist (Utah)

Associate Professor

Utah State University

Utah Climate Center (Dept. Plants, Soils and Climate)

4825 Old Main Hill

Logan, UT 84322-4825

Office (435) 797-2190; Cell (435) 760-8023; FAX (435) 797-2117

E-mail: Robert.Gillies@usu.edu

Web: climate.usu.edu

## EDUCATION

M.A. with Honors (Geography; 2:1), University of Glasgow, U.K. (1984)

*(Advisor: A. Morrison)*

M.S. (Meteorology), The Pennsylvania State University

*(Advisor: T.N. Carlson).*

*Course Requirement Ph.D.*

Ph.D. (Meteorology and Remote Sensing), University of Newcastle, U.K. (1994)

*(Advisor: T.N. Carlson, The Pennsylvania State University)*

## ACADEMIC AND PROFESSIONAL EXPERIENCE

- 2006 – Present Director of the Utah Climate Center / State Climatologist (Utah), Associate Professor, Utah Climate Center (Dept. Plants, Soils and Climate), Utah State University
- 2002 - 2006 Associate Professor (tenured) Departments of Watershed Sciences, Plants, Soils and Climate, Utah State University
- 1996 - 2002 Assistant Professor Departments of Geography and Earth Resources & Plants, Soils and Biometeorology, Utah State University
- 1990 - 1996 Research Associate / Support Scientist Earth System Science Center and Department of Meteorology, The Pennsylvania State University
- 1987 - 1990 Research Associate and Teaching Assistant, Collaborative Position The School of Architecture, University of Newcastle and Department of Meteorology, The Pennsylvania State University
- 1987 Scientific Programmer Department of Meteorology, The Pennsylvania State University
- 1985 - 1987 Research Associate, Building Science, The School of Architecture, University of Newcastle, U.K.

1982 - 1983      President, University of Glasgow Athletic Club, U.K.

## PUBLICATIONS

### *Peer-Reviewed:*

- Carlson, T.N., Belles, J.E and **Gillies, R.R.**, 1991: Transient water stress in a vegetation canopy; simulations and measurements. *Remote Sensing of the Environment.*, **35**, 175-186.
- Carlson, T.N., **Gillies, R. R** and Perry, E.M., 1993: A method to make use of thermal infrared temperature and NDVI measurements to infer surface soil water content and fractional vegetation cover. *Remote Sensing Reviews.*, **52**, 45-59. Special Issue on Recent Advances in Remote Sensing Science.
- Gillies, R.R.** and Carlson, T.N., 1994: A physically based modeling approach for including remotely derived measurements in the study of land use change. *In Effects of Human-Induced Changes on Hydrological Systems, for American Water Resources Association, Annual Summer Symposium, Technical Publication Series (TPS-94-3)*, (Bethesda, Maryland: American Water Resources Association) pp. 27-34.
- Carlson, T.N., **Gillies R.R.** and Schmugge T.J., 1995: An interpretation of NDVI and radiant surface temperature as measures of surface soil water content and fractional vegetation cover. *Agricultural and Forest Meteorology.*, **77**, 191-205.
- Carlson, T.N., Capehart, W.J. and **Gillies, R.R.**, 1995: A new look at the simplified method for remote sensing of daily evapotranspiration. *Remote Sensing of the Environment.*, **54**, 161-167.
- Carlson, T.N., Taconet, O., Vidal, A., **Gillies, R.R.**, Oliso, A. and Humes, K., 1995: An overview of the workshop on thermal remote sensing held at La Londe les Maures, France, September 20-24, 1993. *Remote Sensing Reviews.*, **12**, 147-158.
- Carlson, T.N., Taconet, O., Vidal, A., **Gillies, R.R.**, Oliso, A. and Humes, K., 1995: An overview of the workshop on thermal remote sensing held at La Londe les Maures, France, September 20-24, 1993 *Agricultural and Forest Meteorology.*, **77**, 141-151.
- Gillies, R.R.** and Carlson, T.N., 1995: Thermal remote sensing of surface soil water content with partial vegetation cover for incorporation into climate models. *Journal of Applied Meteorology.*, **34**, 745-756.
- Gillies, R.R.**, Cui, J., Carlson, T.N., Kustas, W.P., and Humes, K.S., 1997: Verification of a method for obtaining surface soil water content and energy fluxes from remote measurements of NDVI and surface radiant temperature. *International Journal of Remote Sensing.*, **18**, 3145-3166.
- Owen, T.W., Carlson, T.N. and **Gillies, R.R.**, 1998: An assessment of satellite remotely sensed land cover parameters in quantitatively describing the climate effect of urbanization. *International Journal of Remote Sensing.*, **19**, 1663-1681.
- Crombie, M.K., **Gillies R.R.**, Arvidson R.E., Brookmeyer P., Weil G.J., Sultan M., and Harb M. 1999: An application of remotely derived climatological fields for risk assessment of

vector-borne diseases – A spatial study of filariasis prevalence in the Nile delta, Egypt. *Photogrammetric Engineering and Remote Sensing.*, **65**, 1401-1409.

Brunsell, N., **Gillies, R.R.** 2000 The effect of emissivity on evaporation. *Remote Sensing and Hydrology 2000* (Proceedings of a symposium held at Santa Fe, New Mexico, USA, April 2000). IAHS Publ. No **267**, 2001, 276-280.

Gottschalk, J., **Gillies, R.R.** and Carlson T.N. 2001: The simulation of canopy transpiration under doubled CO<sub>2</sub>: The evidence and impact of negative feedbacks on transpiration in two 1-D soil-vegetation-atmosphere-transfer (SVAT) models. *Agricultural and Forest Meteorology.*, **106**, 1-21.

Gottschalk, J. and **Gillies, R.R.** 2001: Implications of feedback processes in plant water usage and resulting climate change. *Journal of the American Water Resources Association.*, **37**, 305-314.

Brunsell, N., **Gillies, R.R.** 2002. Incorporating surface emissivity into a thermal atmospheric correction. *Photogrammetric Engineering and Remote Sensing.*, **68** (12): 1263-1269.

Brunsell, N., **Gillies, R. R.** 2003: Determination of scaling characteristics of AVHRR data with wavelets: application to SGP97. *International Journal of Remote Sensing*, **24** (14), 2945-2957.

Brunsell, N., **Gillies, R.R.** 2003. Scale issues in land-atmosphere interactions: implications for remote sensing of the surface energy balance. *Agricultural and Forest Meteorology.*, **117**, 203-221.

Brunsell, N., **Gillies, R.R.** 2003. Length scale analysis of surface energy fluxes derived from remote sensing. *Journal of Hydrometeorology.* **4**, 1212-1219.

**Gillies, R.R.**, Brim-Box, J., Symanzik, J. and E.J. Rodemaker. 2003. Effects of urbanization on the aquatic fauna of the Line Creek watershed, Atlanta – A satellite perspective., *Remote Sensing of the Environment*, **86**, 441-422.

Rieke Arentsen, **Gillies, R.R** and Mesner, N. 2004: Satellite derived impervious surface area as an indicator for water resource impacts in a semi-arid environment, Utah, USA. In *Management Information Systems 2004: Incorporating GIS and Remote Sensing*, WIT Press. ISBN: 1-85312-728-0

Y.-J. Sun, J.-F Wang, R.-H.Zhang, **R. R. Gillies**, Y.-Xue, and Y.-C. Bo. 2005: Air temperature retrieval from remote sensing data based on thermodynamics. *Theoretical and Applied Climatology*, **80**, 37-48.

#### *Book Chapters*

Chapter (*Coupling Thermal Infrared and Visible Satellite Measurements to Infer Biophysical Variables at the Land Surface*) in “*Thermal Infrared Remote Sensing and Land Surface Processes*”. Dale A. Quattrochi, Jeffery C. Luvall (Eds). Taylor & Francis, ISBN 0415302242. January 2004

Book Chapter Co-author – (*Documenting Dynamics of Human Dynamics*) in “*The Manual of Remote Sensing*, 3<sup>rd</sup> Edition (A Series): Volume 5: Remote Sensing of Human

Settlements”, Andrew B. Rencz, Editor-in-Chief; Volume Editors: Merrill K. Ridd & James D. Hipple. ISBN 1-57083-077-0. 2006.

Paper (*On the Appreciation of Constant Pressure Surfaces*) – in “Aviation Meteorology Unscrambled: For VFR and IFR Operations, Certificates and Ratings, 9<sup>th</sup> Edition. Chapter 18 – Contributed Papers on Various Aviation Weather Topics” Kenneth B. McCool, ISBN 978-0-9621387-2-0. 2006.

e-Book – *Scale-dependent approaches to modeling spatial epidemiology of chronic wasting disease*. Conner, Mary M., Gross, John E., Cross, Paul C., Ebinger, Michael R., **Gillies, Robert R.** and Miller, Michael M. Utah Division of Wildlife Resources, United States Geological Survey and, the International Association of Fish and Wildlife Agencies, Special Report 2007.

Book Chapter (*The Growth of Impervious Surface Coverage and Aquatic Fauna*) in Remote Sensing of Impervious Surfaces. Taylor and Francis Group. 2007.

*Non-Peer-Reviewed:*

M.K. Crombie, **R.R. Gillies**, G. Weil, R.E. Arvidson, P. Brookmeyer, M. Sultan, and M. Harb: Remote Sensing as a Tool for Assessing Environmental Risk Factors for Filariasis. Preprint volume of 10<sup>th</sup> Conference on Applied Meteorology, 20-23 October 1997, Reno, NV, by the *American Meteorological Society*, Boston, MA.

Jiangsu Academy of Agricultural Sciences, Nanjing, P. R. China. International Symposium on Modeling for Crop-Climate-Soil-Pest System and Its Application in Sustainable Crop Production. 06/22-26/98.

**Gillies, R.R.**, Gottschalk, J. and Carlson, T.N.: The Simulation of Canopy Transpiration Under Doubled CO<sub>2</sub>: The Evidence and Impact of Feedbacks on Transpiration in Two 1-D Soil-Vegetation-Atmosphere-Transfer (SVAT) Models. *American Water Resources Association*, Specialty Conference on Potential Consequences of Climate Variability and Change to Water Resources of the United States, 10-12 May 1999, Atlanta, GA.

**Gillies, R.R.**, Gottschalk, J.: The Impacts of Regional Scale Transpiration Across North America in a Doubled CO<sub>2</sub> Environment Via Simulations with the GENESIS Global Climate Model. *American Water Resources Association*, Specialty Conference on Potential Consequences of Climate Variability and Change to Water Resources of the United States, 10-12 May 1999, Atlanta, GA.

**Gillies, R.R.** and Griffiths, L.: The Seasonal Energy Signature of the City of Atlanta, Georgia. *The Association of American Geographers*, 95<sup>th</sup> Annual Meeting, 23-27 March 1999, Honolulu, Hawaii.

Symanzik, J., Griffiths, L., **Gillies, R.R.**: Visual Exploration of Satellite Images, 2000 *Proceedings of the Section on Statistical Graphics*, American Statistical Association, Indianapolis, Indiana, August 13-17, 2000, pp10 -19.

Brunsell, N.A and **Gillies, R.R.**: *Proceedings 25<sup>th</sup> Agricultural and Forest Meteorology Meeting*. 20-24 may, 2002, Norfolk, Virginia. Length Scales of Remotely Sensed Vegetation, Surface Radiometric Temperature, and Derived Surface Energy Fluxes.

Brunsell, N.A and **Gillies, R.R.**, Lapenta, B. and Dembeck S.: 83<sup>rd</sup> *American Meteorological Society Annual Meeting*. Symposium on Observing and Understanding the Variability of

Water in Weather and Climate. 9 – 13 February, 2003, Long Beach, California.  
Aggregation of Remotely Sensed Vegetation and Derived Latent Heat Flux.

John H. Prueger, USDA, Ames, IA; and W. P. Kustas, L. E. Hipps, J. L. Hatfield, A. Cahill, C. A. Williams, J. D. Albertson, W. E. Eichinger, D. I. Cooper, N. Brunsell, and **R. Gillies**. *83<sup>rd</sup> American Meteorological Society Annual Meeting*. Symposium on Observing and Understanding the Variability of Water in Weather and Climate. 9 – 13 February, 2003, Long Beach, California. 17<sup>th</sup> Conference on Hydrology. Spatial Variability of Turbulent Fluxes Across a Corn/Soybean Production Region in Central Iowa.

Symanzik, J., Gebreab, S., **Gillies, R.** Wilson, J. 2003: Visualizing the Spread of West Nile Virus, 2003 Proceedings, American Statistical Association, Alexandria, Virginia, CD.

### **SCHOLARLY PRESENTATIONS**

Carlson, T.N. and **Gillies, R.R.**, 1991: Remote sensing of soil moisture over vegetation. Sensitivity and limitations of the infrared temperature method. *Proceedings 20th Conference on Agricultural and Forest Meteorology*. Salt Lake City, UT, September 10-13, 1991.

Carlson, T.N. and **Gillies, R.R.**, 1993: A physical approach for inverting vegetation index with surface radiometric temperature to estimate surface soil water content. *Proceedings Thermal Remote Sensing of the Energy and Water Balance over Vegetation in Conjunction with Other Sensors*, La Londe Les Maures, France, 20-23 September 1993.

**Gillies, R.R.** and Carlson, T.N., 1993: Translation of satellite measurements to land surface parameters. *Proceedings, ERDAS Northern Regional User's Group Meeting*, Indiana University, 4-5 August 1993.

**Gillies, R.R.**, Oliso, A. and Humes, K., (Ed's): *Symposium Proceedings, Thermal remote sensing of the energy and water balance over vegetation in conjunction with other sensors*, La Londe Les Maures, France, 20-23 September 1993.

Miller, D.A., **Gillies, R.R.**, T.N. Carlson, E.M. Perry, D.A.J. Ripley and R.A. White, 1993: Scale similarities in the pattern of soil moisture as determined using visible and thermal infrared measurements over vegetation. *Proceedings American Meteorological Society Annual Meeting, Session on Climatology and Hydrology*, Pasadena, CA, 18-22 January 1993.

**Gillies, R.R.** and Carlson, T.N., 1994: An efficient method for incorporating remote multi-spectral measurements in land-surface models. *AGU*, Baltimore, MD, 23-27 May 1994.

**Gillies, R.R.**, Cui J., Carlson, T.N., Kustas, W.P. and Humes K.S., 1995: Implications of the NDVI and the surface radiant temperature relationship. *AMS Conf. on Hydrology*, Dallas, TX. January, 1995.

**Gillies, R.R.**, Rangeland Resources (CNR, Utah State University) - Sensitivity of Transpiration of Doubled Atmospheric CO<sub>2</sub> Concentration. 11/04/96.

**Gillies, R.R.**, Department of Earth and Planetary Science, Washington University, St. Louis, MO - Sensitivity of Transpiration of Doubled CO<sub>2</sub>. 04/04/97.

**Gillies, R.R.**, Department of Earth and Planetary Science, Washington University, St. Louis, MO - Aspects of Multi-Spectral Remote Sensing - Applied to Land Surface Processes. 04/04/97.

Crombie M.K., **Gillies R.R.**, Weil G., Arvidson R.E., Brookmeyer P., Sultan M., and Harb M.: Tenth Conference on Applied Climatology - American Meteorological Society - Remote Sensing as a Tool for Assessing Environmental Risk Factors for Filariasis. 10/19/97.

**Gillies, R.R.**, Gottschalk, J. and Carlson, T.N.: Model Simulation of Canopy Transpiration under Doubled CO<sub>2</sub> Atmospheric Conditions. Jiangsu Academy of Agricultural Sciences, Nanjing, P. R. China. International Symposium on Modeling for Crop-Climate-Soil-Pest System and Its Application in Sustainable Crop Production. 06/22-26/98.

**Gillies, R.R.**, Second Biennial Conference on Higher Education in Natural Resources: Utah State University. A Graphical Surface-Vegetation-Atmosphere Transfer Model As a Pedagogical and Research Tool. 03/7-10/98.

**Gillies, R.R.**, Utah Geographical Society, 16<sup>th</sup> Annual Fall Meeting, 2 October 1998, Weber State University. Remote Sensing As a Tool for Assessing Environmental Risk Factors for Filariasis.

Quattrochi, D.A., J. C. Luvall, M. G. Estes, Jr, C. P. Lo, S. Q. Kidder, J. Hafner, H. Taha, R.D. Bornstein, **R.R. Gillies**, and K. P. Gallo. Project ATLANTA (ATLanta Land use ANalysis: Temperature and Air quality): A study of how the urban landscape affects meteorology and air quality through time. *American Meteorological Society*, 104-107, 1998.

**Gillies, R.R.**, Gottschalk, J. and Carlson, T.N.: The Simulation of Canopy Transpiration under Doubled CO<sub>2</sub>: The Evidence and Impact of Feedbacks on Transpiration in Two 1-D Soil-Vegetation-Atmosphere-Transfer (SVAT) Models. *American Water Resources Association*, Specialty Conference on Potential Consequences of Climate Variability and Change to Water Resources of the United States, 10-12 May 1999, Atlanta, GA.

**Gillies, R.R.**, Gottschalk, J.: The Impacts of Regional Scale Transpiration Across North America in a Doubled CO<sub>2</sub> Environment Via Simulations with the GENESIS Global Climate Model. *American Water Resources Association*, Specialty Conference on Potential Consequences of Climate Variability and Change to Water Resources of the United States, 10-12 May 1999, Atlanta, GA.

**Gillies, R.R.** and Griffiths, L.: The Seasonal Energy Signature of the City of Atlanta, Georgia. *The Association of American Geographers*, 95<sup>th</sup> Annual Meeting, 23-27 March 1999, Honolulu, Hawaii.

Boettinger, J.L., **Gillies R.R.**, Broderson W., Kienast S., and Jaros R.: Developing a multi-scale, open-ended soil inventory of the Grand Staircase - Escalante National Monument. International Conference on Soil Resources, June 1999, Minneapolis, MN.

**Gillies, R.R.** and Griffiths, L.: The Energy Signature of the City of Atlanta, Georgia. *International Symposium on Special Sensing Research*, Las Vegas, Nevada, October 31 – November 4, 1999.

Crombie M.K., **Gillies R.R.**, Weil G., Arvidson R.E., Brookmeyer P., Sultan M., and Harb M.: Remote Sensing as a Tool for Assessing Environmental Risk Factors for Filariasis.

*International Symposium on Special Sensing Research*, Las Vegas, Nevada, October 31 – November 4, 1999.

**Gillies, R.R.:** The determination of surface climatological fields from AVHRR. Department of Geography, University of Georgia, Athens, Georgia. May 13, 1999. **Invited.**

**Gillies, R.R.:** American Society of Photogrammetry and Remote Sensing, Intermountain Region Fall Technical Meeting. September 29, 2000. Worldwide Spread of Vector-borne Disease – Can Remote Sensing Help? **Invited.**

**Gillies, R.R.,** Qiming Qin, and Rongjian Lu College of Natural Resources. 11/29/00, College Seminar Series. Wavelet Analysis and Neural Networks in Radar Imagery Classification.

**Gillies, R.R.:** *The Association of American Geographers*, 97<sup>th</sup> Annual Meeting, February 27 - March 3, 2001, New York, New York. Radar Image Classification Using Wavelet Analysis and a Neural Network Configuration.

**Gillies, R.R.,** Brim Box, J. and Symanzik, J.: College of Natural Resources. 10/03/01, College Seminar Series. Effects of urbanization on the aquatic fauna of Line Creek, Atlanta – A Satellite Perspective.

Brunsell, N.A and **Gillies, R.R.:** 25<sup>th</sup> *Agricultural and Forest Meteorology Meeting*. 20-24 May, 2002, Norfolk, Virginia. Length Scales of Remotely Sensed Vegetation, Surface Radiometric Temperature, and Derived Surface Energy Fluxes.

**Gillies, R. R.,** 13<sup>th</sup> March 2003: Detection of Vector Borne Diseases: A Satellite Perspective. The National Space Science and Technology Center, Marshall Space Flight Center, Huntsville, Alabama. **Invited**

**Gillies, R. R.,** Jürgen Symanzik, Samson Gebreab and James Wilson, 16-17 September 2003, McLean, Virginia: *Mathematical Modeling of the Spread of Agricultural Bioterrorism Agents*: Statistical and GIS Visualization of Vector-Borne Disease. **Invited**

Symanzik, J., **Gillies, R. R.,** Gebraeb, S., Krishna, G., Ma, Peter and Wilson, J. Visualization, Web-Access, and Simulation of West Nile Virus Data – From the Regional to the National Level. *Interface 2004*, 36<sup>th</sup> Symposium on the Interface of Statistics, Computer Science, and Applications. May 28-31, 2004. Baltimore, Maryland. **Invited**

P. Rieke-Arentsen, **R. R. Gillies,** and N. Mesner, 13- 15 September 2004, Malaga, Spain. *Fourth International Conference on Management Information Systems: Incorporating GIS and Remote Sensing*: Satellite Derived Impervious Surface Area as an Indicator for Water Resource Impacts in a Semi-arid Environment, Utah, USA.

**Gillies, R. R.,** September 27 – 29, 2004, Park City, Utah. Spatial Epidemiology Tools for Chronic Wasting Disease Research and Management: Visualization of Geographically Referenced Statistical Epidemiological Summaries. **Invited**

Symanzik, J., **Gillies, R.,** Lee, H., and Ma, P. NDVI Data Reduction for Fuzzy Statistical Evaluation. *Interface 2006*, 38<sup>th</sup> *Symposium on the Interface of Statistics, Computer Science, and Applications*. May 24-27, 2006. Pasadena, California.

Gazal, R., White, M., **Gillies R.,** Sparrow, E., and Gordon, L. 2006. Urbanization Effects on Leaf Phenology Across a Multi-continent Bioclimatic Gradient. Organized Oral

Session on “Climate Change and Timing in Ecological Communities”, 91<sup>st</sup> *Ecological Society of America Annual Meeting*, August 6-11, 2006. Memphis, Tennessee.

**Gillies, R.R.**, Gazal, R., White, M., and Rodemaker E. J. 2006. The Urban Heat Island Effect – Implications for Leaf Phenology. Session on “Thermal Remote Sensing Data for Earth Science Research”, *AGU Fall Meeting*, 11-15 December 2006, San Francisco, California.

**Gillies, R. R.** 2007. Towards Integrating and Interpreting Climate Data for Agriculture. (Poster) Protecting The Homeland. A University Science and Education Exhibition and Reception of Capitol Hill. *National Association of State Universities and Land-Grant Colleges (NASULGC)*, February 28, 2007. Washington D.C.

Lawrence Higgs and **Robert Gillies**. 2007. Investigating the Wet Dry Cycles in Utah. (Poster). Spring Runoff Conference – Utah State University. April 5-6, 2007. Logan, Utah.

Gebreab Y. Samson, **Robert R. Gillies**, Symanzik Jürgen and Ronald G. Munger. 2007. Bayesian approach to mapping the spatial distribution of Oral Clefts in Utah. Session on “URISA GIS in Public Health”, *Urban and Regional Information Systems Association (URISA) Conference*. May 20-23, 2007, New Orleans, Louisiana.

Gebreab Y. Samson, **Robert R. Gillies**, Symanzik Jürgen and Ronald G. Munger. 2007. Visualization of Birth Defects Data Using Linked Micromap Plots. Session on “URISA GIS in Public Health”, *Urban and Regional Information Systems Association (URISA) Conference*. May 20-23, 2007, New Orleans, Louisiana.

**Robert R. Gillies**. 2007. Climate Change – Its Impact on Precipitation and Water Supply in Utah’s Major Drainage Basins: The Colorado and the Great Basin. Featured Presentation “Utah Water Law, Water Rights and Water Quality: Stay Up to Date!” *15<sup>th</sup> Annual Superconference, Water Law Institute CLE International*. October 1-2, 2007, Marriott Downtown, Salt Lake City, Utah.

## **AWARDS AND HONORS FOR TEACHING AND RESEARCH**

**Walton Memorial Prize** for Work in Physical Geography (Scottish Geographical Society), Thesis presented as Glasgow University's submission, (1984).

May 25, 2000 ASPRS 2000 Annual Conference. **ERDAS Award for Best Scientific Paper in Remote Sensing** (American Society of Photogrammetry and Remote Sensing). Third Place for “An Application of remotely derived climatological fields for risk assessment of vector-borne diseases – A spatial study of filariasis prevalence in the Nile delta, Egypt,” M.K. Crombie, R.R. Gillies, R.E. Arvidson, P. Brookmeyer, G.J. Weil, M. Sultan, and M. Harb (*PE&RS*, 65-12, 1401-1409).

May 7, 2003 ASPRS 2003 Annual Conference. **Leica Geosystems Award for Best Scientific Paper in Remote Sensing** (American Society of Photogrammetry and Remote Sensing). Second Place for “Incorporating surface emissivity into a thermal atmospheric correction,” Nathaniel A. Brunsell and Robert R. Gillies (*PE&RS*, 68-12, pp. 1263-1269)

**Golden Mouse Award** (Utah State University) 2003. For outstanding innovation in technology, teaching and learning.

## **EXTERNAL FUNDING**

*July 1985 - July 1987* **S.E.R.C** (Science and Engineering Research Council), Contract GR/D/11395. Thermal Mapping of Urban Developments using Remote Sensing Techniques.

*August 1987 - September 1990* **S.E.R.C**, Contract GR/E/20080. Numerical Modeling of the Urban Environment.

*January 1995* **NASA** Proposal # 9401011 Forest/Rangeland/Crop/Aquatic Ecosystems Program (National Research Initiative Competitive Grants Program). The Effect on Transpiration of Doubling Atmospheric Carbon Dioxide Concentration.

*September 1994* **NASA** Proposal # 94-5 Networking Infrastructure for Education. Earth System Science Community Testbed. Participant with Consortium for International Research, Collaboration, and Learning about the Earth System.

**NASA** Office of Mission to Planet Earth (Physical Climate Branch). 11/94 - 10/97. \$341,755. "A Remotely Sensed Index of Deforestation / Urbanization for Use in Climate Models." (Co-Principal Investigator).

**NASA** Office of Mission to Planet Earth (Physical Climate Branch). 10/96 - 09/99. \$183,983. "Remote Sensing and modeling of temporal changes in urban landcover." (Principal Investigator).

**NASA** Office of Mission to Planet Earth. 12/97 - 12/98. Enhancement of Remote Sensing Analysis Capabilities at Utah State University. \$398,000. (Principal Investigator).

**National Science Foundation**. (Division of Atmospheric Sciences). 11/97 - 12/97. "Start-up Equipment for UNIDATA at Utah State University." \$35,264 (Principal Investigator).

**NOAA/NASA** Joint GEWEX/GCIP Research Announcement. 12/97 - 12/2000. \$479,663. Analysis of Spatial and Temporal Variability of the Warm Season Land Surface Energy Budget Using GOES Assimilation Techniques and Surface Flux Sites. (Co-Principal Investigator).

**NASA** 08/01/00 – 08/01/01. Extension of Atlanta/Houston Urban Heat Island Studies Using ASTER Imagery. \$52,073.00. (Principal Investigator).

**SUN** Microsystems 05/12/00 Sun Microsystems Matching Equipment Grant Initiative. \$66,000. (Principal Investigator).

**Mineral Lease** Internal Competitive. Advancement of Soil Survey for the Grand Staircase – Escalante National Monument Through Application of Landsat and EOS Platform Sensor Data. \$35,000 (Co-Investigator with Dr. Janis Boettinger (PSB)).

**Agricultural Experiment Station** Internal non-competitive \$10,000 per annum. Analysis of Spatial and Temporal Variability of the Warm Season Land Surface Energy Budget. Termination Date 06/30/2002.

**Agricultural Experiment Station** Internal non-competitive \$10,000 per annum. Examination of Spatial Scale Effects in Land Atmosphere Interactions. Termination Date 06/30/2005.

**National Science Foundation** 09/06/02 – 09/06/06. Integrated Phenology Research and Education. \$492,674 (Co-Principal Investigator with Dr. Michael White)

**Community / University Research Initiative** 06/01/02 – 06/01/03 Urban Planning and Satellite Remote Sensing: A Pilot Program for Planners. \$25,000

**DOD** 09/01/02 – 08/31/04 Medical Vanguard Disease Surveillance. \$103,574 (Principal Investigator)

Post-Doctoral Fellowship – Lee Hee Il – **Korea Science and Engineering Foundation** (KOSEF). \$20,115 (Co-Investigator)

**Community / University Research Initiative** 06/01/05 – 06/01/06 Web-based Micromap Capabilities. \$20,000

**ACADEMIC AND RESEARCH ADVISING**

*Graduate Students:*

Student	Degree (Major)	Status	Professor's Role
<i>Pennsylvania State University</i>			
Timothy Owen	M.S. (Meteorology)	Graduated 1995	Committee Member
Cui Jui	M.S. (Meteorology)	Graduated 1996	Major Professor
Jon Gottschalck	M.S. (Meteorology)	Graduated 1997	Major Professor
<i>Utah State University</i>			
Nathaniel Brunsell	Ph.D (Biometeorology)	Graduated 2002	Major Professor
Jerry Tagestad	M.S. (Geography)	Graduated 1998	Directed Thesis
Joshua Campbell	M.S. (Biometeorology)	Graduated 2006	Major Professor
Louise Griffiths	M.S. (Geography)	Graduated 2006	Major Professor
Eli Rodemaker	M.S. (Geography)	Graduated 2006	Major Professor
Bekele Temesgen	Ph.D (Biometeorology)	Graduated 2006	Directed Thesis
Penny Rieke Artentsen	M.S. (Watershed Science)	Graduated 2005	Co-advisor
Gopi Krishna Chapala	M.S. (Computer Science)	Graduated 2004	Directed Thesis
Samson Gebreab	Ph.D (Ecology)	Ongoing	Major Professor
Peter Ma	M.S. (Geography)	Graduated 2006	Major Professor
Ravi Kiran	M.S. (Computer Science)	Graduated 2006	Directed Thesis
Vineela Vallabhaneni	M.S. (Computer Science)	Ongoing	Thesis Advisor

*Graduate Committees (excluding above):*

3 Ph.D. (Civil & Environmental Engineering; Plants, Soils and Climate)

9 M.S. (Geography and Earth Resources, Forest Resources, Plants, Soils and Climate, Civil & Environmental Engineering, Computer Science, Watershed Sciences)

*Visiting Professors / Scholars:*

Dr. Hee Lee from the Republic of Korea, Fall 2001 – Spring 2002. Attending Utah State University by virtue of a competitive overseas research fellowship awarded by the Korean government. Dr. Lee is a medical entomologist whose interests lie in detecting Malaria breeding habitats using remote sensing and GIS.

Samson Yikealo Gebreab from Eritrea, August 2002 – January 2003. Studying MSc in Geographic Information Sciences at Wageningen. Fulfilling his thesis Master's research at Utah State University with Dr. Gillies.

Dr. Hee Lee from the Republic of Korea, Spring 2004 – Fall 2006. Attending Utah State University by virtue of a competitive overseas research fellowship awarded by the Korean government.

**TEACHING**

*Courses Taught:*

*Pennsylvania State  
University*

METE0 02	<i>Weather and Society</i>
METE0 03	<i>Lab supplement for Meteo 02</i>
METE0 472	<i>Climatology</i>
METE0 467E / Earth 497E	<i>Investigation of the Earth System Biosphere Atmosphere</i>
METE0 567C	<i>Interactions (Land Surface Processes)</i>
METE0 454	<i>Micrometeorology</i>
METE0 421	<i>Dynamic Meteorology I</i>

*Utah State University*

GEOG / BMET 3280	<i>Global Climatology</i>	97 – 00
GEOG 4750	<i>Fundamentals of Remote Sensing</i>	98 – 05
BMET 3250	<i>Aviation Weather</i>	97 –
BMET / BIE 5250/6250	<i>Remote Sensing of Land Surfaces</i>	99 – 03
GEOG 6980 - 2	<i>Imagine Toolkit</i>	Spring 2001
GEOG 6900	<i>Programming for Remote Sensing and GIS Environments</i>	Spring 2002

*Teaching Activities / Development:*

Selected participant (by review) in the 1997 Summer Workshop “Using Instructional Technological and Satellite Data for College-Level Education in the Atmospheric and Earth Sciences,” sponsored by the National Science Foundation and COMET.

Participant in “Shaping the Future, Unidata Users as Leaders”. June 19-23, 2000.  
Sponsored workshop by the National Science Foundation. **Invited**

Participant in a workshop on *Accelerated Learning Training Methods* with Dave Meier  
(from The Center for Accelerated Learning). **Invited**

*Mentoring Activities / Development*

September 12, 2002 Annual [MGE@MSA](mailto:MGE@MSA) Faculty Doctoral Mentoring Institute Mentor  
for Underrepresented Minority Doctoral Students. **Invited**

**PROFESSIONAL ACTIVITIES**

*Society Memberships:*

American Meteorological Society  
Association of American Geographers  
American Geophysical Union  
International Association of Hydrological Sciences  
American Society of Photogrammetry and Remote Sensing

*Manuscript, Book and Proposal Reviews:*

The Journal of Forestry  
The International Journal of Remote Sensing  
Natural Environmental Research Council, U.K.  
Urban Ecosystems  
California Department of Food and Agriculture  
Remote Sensing of Environment  
International Journal of Remote Sensing  
Theoretical and Applied Climatology  
American Water Resources Association (AWRA)  
Utah Agricultural Experiment Station at Utah State University  
Cooperative State Research, Education, and Extension Program

Weather and climate: cause, course, effect, animation. Harald Frater (ed.), Springer-Verlag, 1999, ISBN, 3-540-14667-9. **Gillies, R.R.**, *Agricultural and Forest Meteorology.*, **2823** (2000) 1-2.

*Workshops / Conference:*

Invited team-member of Thermal Inertia Mapping Experiment (TIMEX) satellite science team. Proposed thermal IR satellite concept being developed at JPL for submission as an Earth System Science Pathfinder project.

Remote Sensing and Image Processing Workshop, Tuscon, Arizona, April 13 – 15, 1999. Sponsored by NASA (**Invited**)

International assessor for “the midterm presentation of the programme Earth Observation” 28 – 29 October 1999 at the Sorø Strorko, Denmark.

International participant (**invited**) of the GEWEX workshop on status of SVAT modeling. Sponsored by World Meteorological Organization.

Human Health, Urbanization, and Remote Sensing Workshop (**invited**) April 10, 2001. The Rollins School of Public Health, Emory University, Atlanta, Georgia, USA.

Observer (**invited**) WHO meeting on the Prevention of Craniofacial Anomalies, 24-26 May 2001, Utah, USA

Integrated Research Team: The Role of Indications and Warnings for Prediction and Surveillance of Catastrophic Biological Events. 28 – 30 June, 2004 (**invited**)

### **OTHER AWARDS & HONORS**

Chi Epsilon Pi -- The Pennsylvania State University, Meteorological Honors Society, (1989).

Catherine Clarke Trophy for Outstanding Contribution to University Sport, University of Glasgow, (1984).